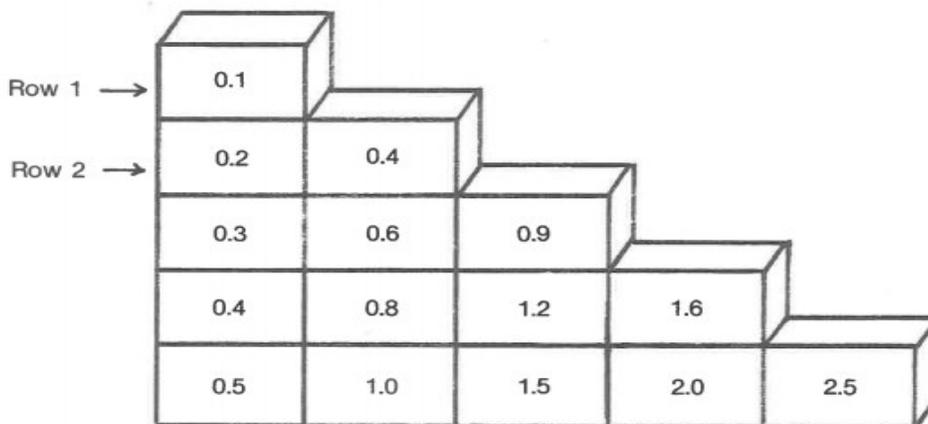


PRIME

Junior!

math magazine

Block Patterns



Assume this block pattern continues.

1. From left to right, what is the first number in Row 50? _____
2. What is the first number in the Row 100? _____
3. How many blocks are in Row 25? _____
4. What number is on the third block in Row 12? _____
5. What number is on the sixth block in Row 20? _____
6. What is the number on the last block in Row 9? _____
7. What is the second to last number in Row 13? _____
8. How much less is the fourth number than the fifth number in Row 15? _____

MATHgazine Editors

Carole Greenes Ed. D.
carole.greenes@asu.edu
Jason Luc
jason.luc@asu.edu
Yifan Tian
yifan.tian@asu.edu
Tanner Wolfram
twolfram@asu.edu

PRIME
CENTER

VOLUME 6 | ISSUE 6 | April 2016 ©2016
PRIME Center, Arizona State University

Name Game



Mary

David

Steven

Jackie

Age: ___ Age: ___ Age: ___ Age: ___

Rich

Shelly

Nancy

Fred

Age: ___ Age: ___ Age: ___ Age: ___

Use the clues. Fill in each person's age.

1. Shelly: "The sum of my age and Nancy's age is 40. The product of our ages is 300."
2. David: "The product of my age and Mary's age is 105. The difference in our ages is 8. I am older than Shelly."
3. Fred: "The sum of my age and my grandfather's age is 80. The difference in our ages is 64."
4. Jackie: "The sum of my mother's age and my age is 52. My mother was 24 years old when I was born."
5. Rich: "The product of my age and my father's age is 120. The difference in our ages is 26. Next year I'll be starting school."
6. Steven: "The product of my age and my grandmother's age is 540. The sum of our ages is 69. My age is a single-digit number."

CHECK: The sum of all the ages is 97.

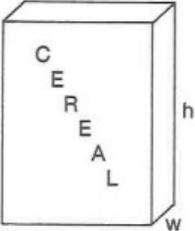
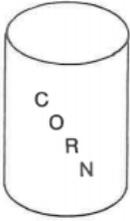
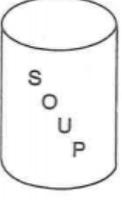
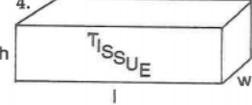
In a Row



1. How many people can be seated when 10 square tables are put together in a straight line? Table tops are all the same size. Only one person may be seated at each side of a table. _____
2. How many people can be seated when 11 tables are put together? _____
3. How many people can be seated when 25 are put together? _____
4. How many people can be seated when 40 tables are put together? _____
5. How many people can be seated when 150 tables are put together? _____
6. Generalize the pattern. Use the variable " n " to stand for numbers of tables. When " n " tables are put together, how many people can be seated? _____
7. How many tables were put together to seat exactly 32 people? _____
8. How many tables were put together to seat exactly 64 people? _____
9. How many tables were put together to seat exactly 160 people? _____

MATCH MEASUREMENTS

Use the numbers on the signs to fill in the blanks. Numbers must fit the facts.

<p>1. </p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">3,078</div> <div style="display: flex; justify-content: space-around; width: 100px; margin: 10px auto;"> 27 19 </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">6</div> <p>Height = _____ cm Width = _____ cm Length = _____ cm Volume = _____ cm³</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">Hint: $h + w = 33$</div>	<p>2. </p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">482</div> <div style="display: flex; justify-content: space-around; width: 100px; margin: 10px auto;"> 25.1 10 </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">8</div> <p>Height = _____ cm Diameter = _____ cm Circumference = _____ cm Weight = _____ grams</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">Hint: $C + h = 35.1$</div>
<p>3. </p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">298</div> <div style="display: flex; justify-content: space-around; width: 100px; margin: 10px auto;"> 22 10 </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">7</div> <p>Height = _____ cm Diameter = _____ cm Circumference = _____ cm Weight = _____ grams</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">Hint: $C + h = 32$</div>	<p>4. </p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">1,728</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">1,008</div> <div style="display: flex; justify-content: space-around; width: 100px; margin: 10px auto;"> 24 12 </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">6</div> <p>Height = _____ cm Length = _____ cm Width = _____ cm Volume = _____ cm³ Surface Area = _____ cm²</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">Hint: $l + w = 36$</div>

Composites

Composite numbers have 3 or more factors.

Between 1 and 100:

1. The least composite number is _____.

It has _____ factors.

It's factors are _____.

2. The greatest composite number is _____.

It has _____ factors.

Its factors are _____.

Between 1 and 50:

3. The composite number with the greatest number of factors is _____.

It has _____ factors.

Its factors are _____.



βαζανθς

Balzano is a puzzle that will tap into your logical reasoning abilities. Read the directions carefully, then try your hand at Balzano Shapes.

Directions:

Your job is to figure out the Desired Arrangement (the solution) of three elements (shapes) from clues that provide information about the shapes and their locations. The possible shapes are **circle, hexagon, square, trapezoid, and triangle**. No shape may be repeated.

The **Arrangement Column** shows sets of shapes in rows. In the Balzano puzzle below, the second row, arranged in order from left to right, is: trapezoid, hexagon, circle.

Correct Shape in the Correct Place identifies the number of elements that are the correct shape AND are in the right place. The second row has 1 shape in the right place.

Correct Shape in the Wrong Place identifies the number of correct shapes BUT in the wrong place. There are 2 of these in the second row.

Incorrect Shape identifies the number of shapes that do not belong in the arrangement. There are 0 of these in the second row.

	Correct Shape/Place	Correct Shape/ Wrong place	Wrong shape/ Wrong place
△ □ ⬡	1	1	1
○ △ □	1	2	0
⬡ ○ △	1	1	1
□ ⬡ △	0	2	1
	3	0	0